

# PATENT SPECIFICATION

1,082,066

DRAWINGS ATTACHED.

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## COMPLETE SPECIFICATION.

### Securing of Containers with Self-Adhesive Tape.

We, TAPE DEVELOPMENT LIMITED, a British Company, of Friendly House, 21—24 Chiswell Street, London, E.C.1, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to the securing of containers with self-adhesive tape having a tear strip.

Such a tear-strip facilitates the opening of the container when the tape has been laid over a junction of two parts of the container, for example the body and the lid, since by pulling on the tear-strip, which is a narrow non-adhesive strip running along the length of the tape on the adhesive side, the centre of the tape is removed, leaving the edges adhering to the two parts. It is clearly important that the user should be able to grip the end of the tear strip firmly to strip it off.

In accordance with the present invention there is provided a method of securing a container with self-adhesive tape having a tear-strip including severing a length of tape to be applied to the container from a reel of the tape by means of a profile cutter so shaped that the end of the severed length has parts of the tape removed on either side of the tear strip, leaving a projecting tab to facilitate starting of the tear by the tear strip when the container is to be opened, the end edges of the severed length of tape on either side of the tab forming an acute angle with the side edges of the tab.

The invention will now be described in more detail with the aid of an example illustrated in the accompanying drawings, in which:—

Fig. 1 shows a length of adhesive tape  
[Price 4s. 6d.]

with a tear strip, the end of the tape having been cut ready for application,

Fig. 2 shows a cylindrical tin box with a slip lid secured with the aid of a length of tape cut as in Fig. 1.

Figs. 3, 4 and 5 are respectively side, top and detail views of a first apparatus for cutting and applying tear-strip tape, and

Figs. 6 and 7 are respectively a plan and elevation of a second apparatus for cutting and applying tear-strip tape.

The self-adhesive tape shown in Fig. 1 consists of a strip 10 of conventional transparent cellulose tape coated with a pressure-sensitive adhesive on one side. Along the centre of the strip 10 on the adhesive-coated side is laid a narrow band 11 of coloured cellulose strip. The band 11 is thicker than the base film of the strip 10 to give it greater strength so that it may act as a tear strip. The tear-strip may be composed of materials other than cellulose strip, for example, vinyl film, which because of its greater strength can be used in thinner strips. The left-hand end of the tape, as seen in Fig. 1, is shown cut ready for application. The cutting of the end may of course be effected during application at any time before the end is stuck down. The end has been cut with a profile-cutter which leaves a projecting tongue 12 consisting of the end of the band 11 and part of the strip 10 adhering to it. The tongue 12 is thus non-adhesive on both sides and remains free after the tape has been applied. The end edges 13 and 14 of the strip 10 on either side of the tongue 12 are inclined at an acute angle to the side edges 15 and 16, respectively, of the tongue 12 and present the appearance of a V-shaped notch in the end of the tape from the apex of which the tongue 12 projects.

As shown in Fig. 2, to secure a slip lid 17 to the body 18 of a cylindrical tin box the tape is wrapped round in the usual way with the band 11 overlying the junction between the lid and the body, one edge of the tape adhering to the lid 17 and the other edge to the body 18. The cut end of the tape overlaps the other end to leave the tongue 12 accessible. When the cut end is pressed down the side edges of the tape extend beyond the root of the tongue and adhere to the underlying other end of the tape.

To open the tin box the tongue 12 is gripped and pulled away from the surface of the box. The edges of the tape remain adhering to the box, and the tear-strip, assisted by the shaping of the end of the tape, tears the tape along its centre leaving the edges of tape adhering one to the body and the other to the lid of the box. The lid is thus freed and can easily be removed.

The tape may be wrapped around the box by a machine or by apparatus which dispenses the tape and facilitates manual application of the tape. One form of such apparatus is shown in Figs. 3 to 5. In this apparatus a reel 20 carrying tape 21 with a tear-strip 22 is carried on a spider 23 rotatably mounted on a frame 24. The frame 24 is intended to rest on a table with the axis of the reel 20 horizontal. At one end the frame 24 carries a trough 25 which hangs over the edge of the table and receives a tin 26 to be sealed. The tape 21 passes from the reel 20 around guide rollers 27 and 28 mounted on the frame 24 and through a profile cutter having a bed 29 and a swinging arm 30. The arm 30 has projections 31 and the bed 29 has complementary recesses 32 to cut the tape to the end profile shown in Figs. 1 and 2. Fig. 5 shows the bed 29 and arm 30 as seen in the direction V—V of Fig. 4, the position of the arm shown in full lines being that seen in Fig. 3 and the position shown in broken lines that seen in Fig. 4.

When the tin 26 to be sealed has been placed in the trough 25 the end of the tape 21 is drawn forward by one hand and applied to the joint between the tin 26 and its lid. The tin is rotated with the other hand to apply the tape round the joint. Towards the end of the rotation of the tin the arm 30 is swung over to shear the tape producing the end profile shown in Figs. 1 and 2. The tin is rotated further and the profiled end pressed down. The end of the tape coming from the reel 20 remains adhering to the bed 29.

Figs. 6 and 7 show a further form of apparatus for cutting and applying tear-strip tape to seal a tin box. The same reference numerals have been used for corresponding elements in Figs. 3 to 5 and Figs. 6 and

7. The spider 23 and guide wheels 27 and 28 are rotatably mounted on a mounting plate 33 which slides on a post 34 standing on a table 35. The plate 33 is supported at an adjustable height by means of a collar 36 secured by a screw 37 to the post 34. For applying tape to cylindrical tins such as the tin 26 the plate 33 is secured against rotation around the post 34 by a pin 38 passing through the plate and resting in a socket in the collar 36. The guillotine for the tape consists of a bracket 39 carrying projections 40 and a swinging arm 41 pivotally mounted on the bracket 39 and having triangular recesses 42 mating with the projections 40 to form an end profile on the tape like that shown in Figs. 1 and 2.

The tape 21 passes over an additional guide pin 43 which helps to detach the adhesive tape from the roll. The tin 26 is held in an upright position and pushed against a rail 44 attached to the table 35 and a tape-application roller 45 and a locating roller 46 mounted on the plate 33. As before, the end of the tape is applied to the joint by hand and is wound on to the tin by rotation of the tin, being cut off by the use of the guillotine before the cut end is applied to the tin.

When the pin 38 is removed the plate 33 can swing about the post 34, subject to restraining action of a spring 47 extending between the screw 37 and a pin 48 attached to the plate 33. This enables the rollers 45 and 46 to yield to accommodate tins of non-circular section.

Instead of using a reel of tear-strip tape, as in the embodiments described, the apparatus may be constructed to apply the tear-strip to the tape before it is cut. For example, a tear-strip from a separate reel can be applied to standard tape by means of guides.

#### WHAT WE CLAIM IS:—

1. A method of securing a container with self-adhesive tape having a tear-strip including severing a length of tape to be applied to the container from a supply of the tape by means of a profile cutter so shaped that the end of the severed length has parts of the tape removed on either side of the tear-strip, leaving a projecting tab to facilitate starting of the tear by the tear-strip when the container is to be opened, the end edges of the severed length of tape on either side of the tab forming an acute angle with the side edges of the tab.

2. Apparatus for carrying out the method of claim 1 including means for supplying self-adhesive tape having a tear-strip to a profile cutter for severing the tape, the cutter being so shaped that the end of the severed length has parts of the tape removed on either side of the tear-strip, leav-

- ing a projecting tab, and the end edges of the severed length on either side of the tab form an acute angle with the sides of the tab.
- 5 3. Apparatus as claimed in claim 2 in which the profile cutter has a swinging arm and a stationary member which have complementary shapes which co-operate to shear the tape.
- 10 4. Apparatus as claimed in claim 2 or 3 in which the means for supplying tape having a tear-strip to the cutter comprise means for supporting separate sources of tape and tear-strip and guides for applying the tear-strip to the tape.
- 15 5. Apparatus as claimed in claim 2 or 3 in which the means for supplying tape having a tear-strip to the cutter comprise means for supporting a reel of tape carrying a tear-strip and guide rollers for guiding the tape from the reel to the cutter.
6. Apparatus as claimed in any of claims 3 to 5 in which the supply means and profile cutter are carried on a support adjustable in height above a table to accom- 25 modate different sizes of container.
7. Apparatus as claimed in claim 6 in which the support carries rollers for locating the container and is swingable about a vertical axis against a biasing spring to accom- 30 modate irregularities in the contour of the container.
8. Apparatus for securing a container with self-adhesive tape having a tear-strip substantially as described with reference to 35 Figs. 3 to 5 or Figs. 6 and 7 of the accompanying drawings.

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COMPLETE SPECIFICATION

3 SHEETS

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the Original on a reduced scale

Sheet 1

Fig. 1.

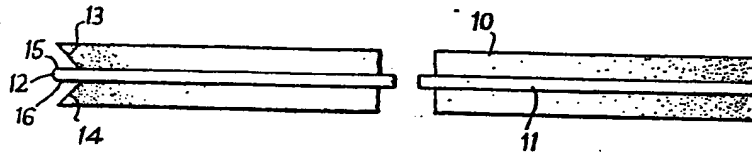


Fig. 2.

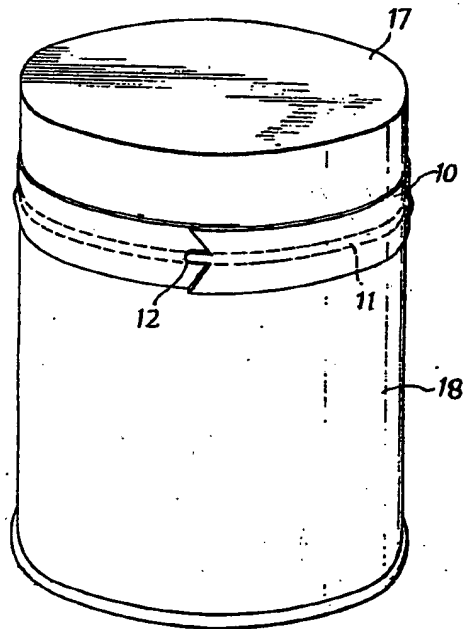


Fig. 3.

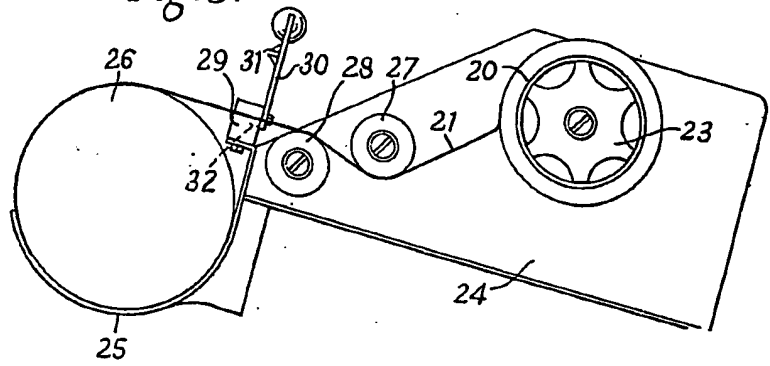


Fig. 4.

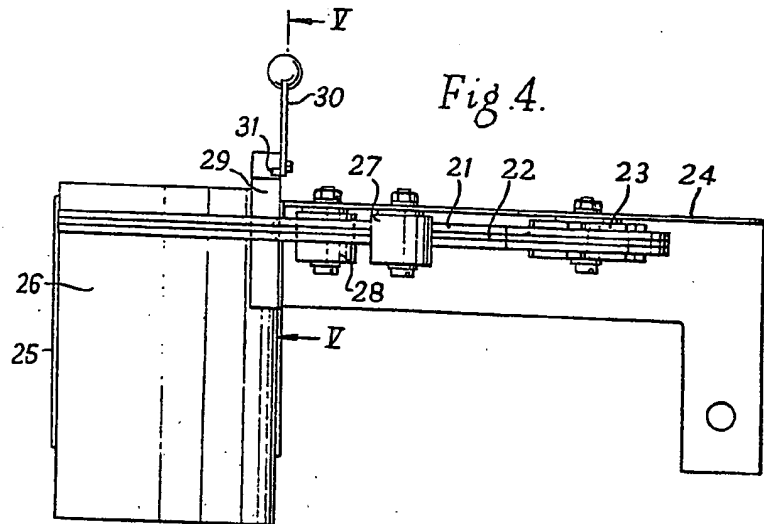
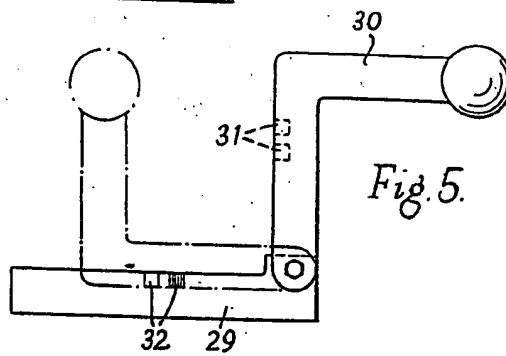


Fig. 5.



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COMPLETE SPECIFICATION

3 SHEETS

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the Original on a reduced scale  
Sheets 2 & 3

Fig. 6

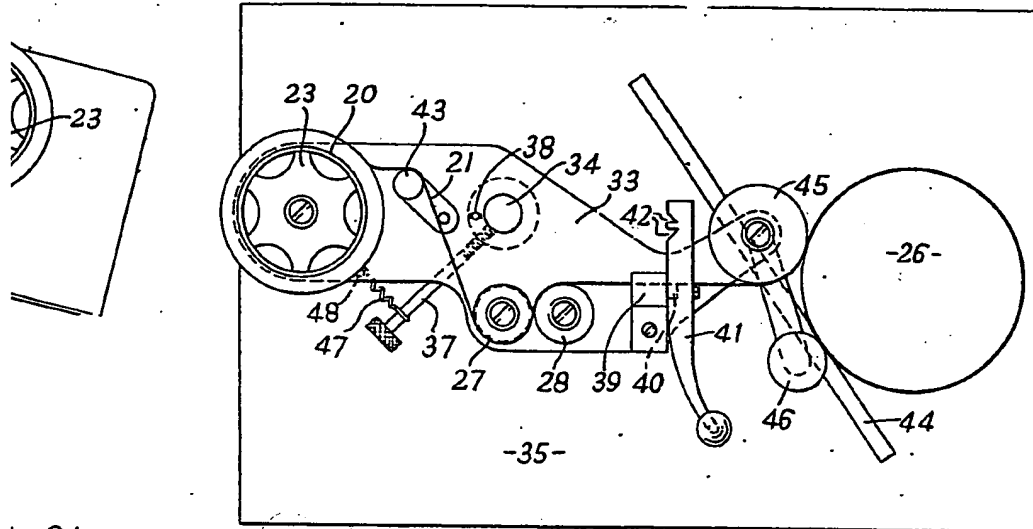


Fig. 7

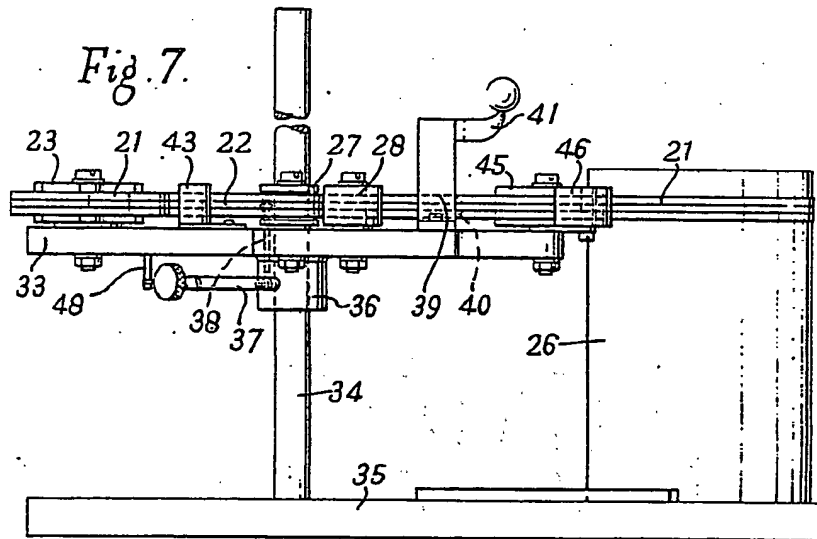


Fig. 6

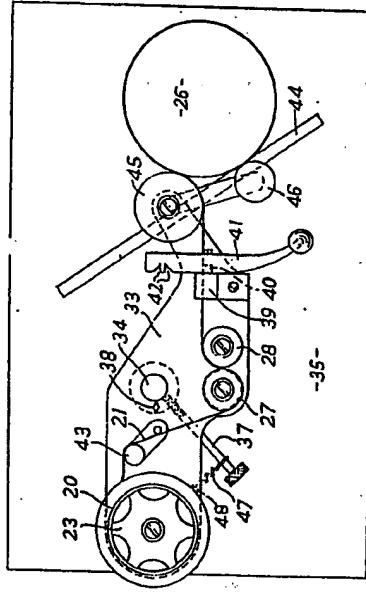


Fig. 3.

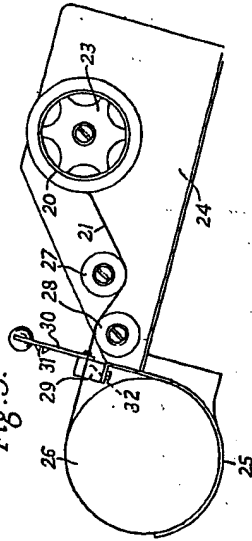


Fig. 4.

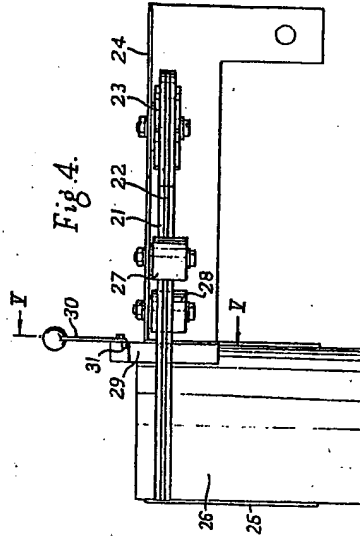


Fig. 5.

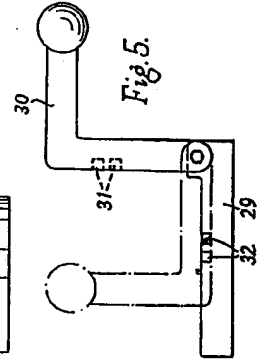


Fig. 7.

